Man Land and Sea
A publication by Guam Coastal Management Program
March 21, 2019

In this issue:

Message from the DIRECTOR

Hafa Adai! Welcome to the March 2019 issue of Man, Land, and Sea newsletter. In this issue, we present the efforts of our network partners and how we are working with the community to make Guam a great place to live. We also celebrate Mes Chamorro and the importance of preserving and perpetuating our traditions, our history, Guam's natural beauty, and our cultural heritage.

The Bureau of Statistics and Plans goal is to upgrade the quality of life for Guam's people, by which there are conditions and opportunities whereby people fully participate, to develop plans to maintain balance and equity between development and the environment in order to preserve the unique culture, traditions and beauty of the island; optimize the use of resources to meet present and future infrastructure and; to develop and maintain infrastructure capacity at a level that could sustain future population, socio-economic and physical growth.

The Bureau's Guam Coastal Management Program continues to work toward sustainable, responsible and smart development. This issue emphasizes the importance of Guam's natural resources and also the importance of partnerships to come together to address the many "ridge to reef" challenges.

In this issue, you will read about National Silver Jackets program and how we are coming together to address flooding on Guam, save the Balati, Invasive Algae, Tanguisson Clean-up and "What In The World Is This?".

Si Yu'os Ma'ase,
Tyrone J. Taitano
Director, Bureau of Statistics and Plans

Tyrone J. Taitano Confirmed as Director of Bureau of Statistics and Plans

Tyrone J. Taitano was appointed by Governor Lourdes A. Leon Guerrero on January 1, 2019 to serve as the Director of the Bureau of Statistics and Plans.

His professional career has been devoted to public services in both the legislature and executive branches of Government of Guam. He served in more than a dozen of legislature bodies in various advisory capacities. He has conducted extensive work for legislative committees including Ways & Means, Health, Education, Environment and Federal Affairs. Taitano held the position of administrator of the Guam Memorial Hospital, general manager of Guam Mass Transit and director of Policy Development and Operations for Gov. Carl Gutierrez.

Taitano holds a bachelor's degree in Finance and Economic from the University of Guam (UOG) and is a graduate of Father Duenas Memorial School.

Taitano is pictured with his wife Senator Kelly Marsh Taitano. Photo was taken on January 8, 2019 Flag Ceremony at the Ricardo J. Bordallo Complex, Adelup, Guam.

MAN, LAND and SEA NEWSLETTER
MARCH 21, 2019

Marilyn H. Guerrero

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Seated L-R, Maricar Quenzon (GEPA), Helen Gumataotao (GEPA), Nate Habana (UOG/WERI), Adrienne Loerzel (NOAA Liaison), Jesse Garcia (DPW), Joe Ulloa (DPW), Gil Suguitan (BSP/GCMP), Genevieve Cruz Miller (NWS Guam), Paul Santos (DLM), Marvin Aguilar (DLM), Leo Espia (GHS/OCD), and Jason Norris (USACE – Honolulu District).

Early discussions lead Guam and National Silver Jackets to milestone event

Author: Jeffrey A. Herzog, Project Manager, CEPOH-PPC (USA)

During a landmark occasion Feb. 5, the Honolulu District Silver Jackets Coordinator held the first formal meeting of the Guam Silver Jackets team. Building resilience across our Nation, beyond the 50 states, the historical event marked a first for the Guam Silver Jackets, as well as the National Silver Jackets program. The Guam Team Charter which was recently signed and adopted by six agencies within the government of Guam and is currently being routed for signatures by federal partners' marks the first territorial Silver Jackets Team.

Honolulu initiated discussions with the government of Guam in August 2018 with the Coastal Management Office and the Office of Civil Defense. Despite the challenge of being 19 hours ahead of the Honolulu District coupled with being 15 hours ahead of the east coast, the Silver Jackets serves to be the catalyst for interagency collaboration across all the agencies and territory.

"What we have done these past few months is an exemplary demonstration of leveraging resources," Edwin Reyes, administrator of the Guam Coastal Management Program said. "The technical studies that USACE provides along with the local and federal partnerships truly empowers the planning process by providing us with an understanding of our threats as well as a portfolio of options and pathway forward to help those who experience chronic flooding and erosion threats".

Seated L-R Jeffrey Herzog (USACE), Ellen Gerggren (IWR/USACE), and Lasia Casil (HRRA).

Above: Members of the Guam Silver Jackets Team gather for the initial meeting of the team. This marks the first official Territorial Silver Jackets Team in the Nation.

Expressing the administration's commitment to working with not only the Corps but other groups both local and National during their remarks Feb. 6, to the Assembly of Planners Guam Governor Lou Leon Guerrero and Lt. Governor, Josh Tenorio emphasized the risks Guam battle like riverine flooding, coastal flooding, coastal erosion, tsunami, typhoon, as well intrusion into their fresh water Aquifer.

"We find ourselves in this cost culture environment at all levels of government" said Jeff Herzog Honolulu District Silver Jackets Coordinator for the Pacific Island's region who attended the meeting of both local and federal partners in Guam. "The ability to align visions and priorities, working together addressing hazards assists leaders in making informed decisions."

Herzog stressed it's not about creating more work but maximizing outputs with limited inputs aligning the already identified work.

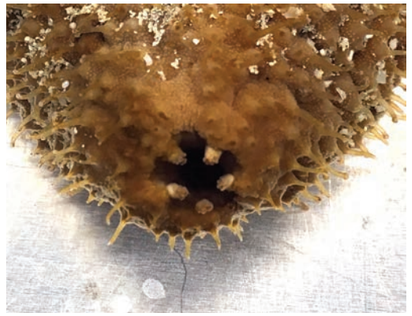
Ellen Berggren from the National Silver Jacket's Team and Jeff Herzog, the Honolulu District Silver Jackets Coordinator for the Pacific Island's region attended the meeting of both local and federal partners in Guam

The Guam Silver Jackets team will meet again in March to develop an interagency proposal for the upcoming federal fiscal year 2020 proposal cycle.

Enypniastes eximia, known as the headless chicken monster, swims as deep as a mile below the surface. Credit: National Oceanic and Atmospheric Administration (NOAA).

Bohadschia argus, also known as the leopard sea cucumber. Credit: David Burdick, guamreeflife.com.

Stichopus chloronotus with fleshy papillae that resemble spines. Credit: David Burdick, guamreeflife.com.



Anal teeth of Actinopyga sea cucumbers appear to prevent pearlfish and other organisms from entering their body cavities.
Credit: Laura Caser and Paige Mendiola.

The sticky, white Cuvierian tubules of B. argus are used to distract or entangle would-be predators. Credit: David Burdick, guamreeflife.com.

Talen måddung CHamoru, aka Synapta maculata, resembles a rope. When feeding, the tentacles move sand and detritus into the mouth. Credit: David Burdick, guamreeflife.com.

Save Our Balåti!

Author: Jonita Kerr,
Advisor, GCC Ecowarriors

As shown here, a healthy reef should have many sea cucumbers. Holothuria atra usually the most common balåti on our reef flats, is becoming difficult to find in areas that are overharvested. Credit: Dave Burdick, guamreeflife.com.

A prominent resident of Guam's reefs is the sea cucumber, which local residents call balåti. Generally viewed with more disgust than fascination, your first experience might have been someone throwing one at you, or getting squirted with water from its anus. Maybe you accidentally stepped on a balåti and became ensnared in sticky white gooey strands. If any of these match your introduction to balåti, let's start fresh, and prepare to be amazed by these under-appreciated creatures.

Sea cucumbers, and their relatives such as sea stars and sea urchins, are grouped in the Phylum Echinodermata, which is Greek for ekhinos or hedgehog, and derma for skin, as they resemble the spiny-skinned mammal. Aristotle, the Ancient Greek philosopher and father of marine biology, named the sea cucumbers holothurion, perhaps due to their 'unseemly' phallic appearance. There are over 1700 species of sea cucumbers distributed throughout the world's oceans, from tropical reefs to the extreme depths of the Mariana Trench and the polar regions. According to researchers from the University of Guam Marine Lab, 65 species have been recorded around Guam and they think that there are more to be found.

Sea cucumbers share a super power with other echinoderms. They can regenerate lost parts. When faced with a predator, or an unlucky human, some species will discharge white, sticky Cuvierian tubules from the anus to entangle or distract the predator. Other species sacrifice their internal organs. Eventually, these body parts are replaced by new structures. If you are caught in sticky tubules, simply scrape them off with a handful of sand.

While the spines of a sea urchin are obvious, the 'spines' of balåti are embedded in the skin as tiny, mineralized ossicles that help provide structure and protection. Some species also have papillae, bumps or cone-shaped skin projections that resemble spines. The sharp-pointed anchor-shaped ossicles of Synapta maculata can be irritating to a predator that attempts to bite it, or a human if it gets snagged on a reef shoe or bare skin. Often mistaken for a snake or an eel, S. maculata is called talen måddung in CHamoru because it looks like a rope. If one happens to get stuck on you, do not panic, just gently detach it and set it free.

Thelonota ananas, with its many papillae is aptly named the pineapple sea cucumber. Credit: Dave Burdick, guamreeflife.com.

To move, most sea cucumbers draw water into the anus and use hydraulic pressure to move many tiny tube feet on the bottom of the animal. Tube feet also assist with breathing and attaching to surfaces. To escape predators, sea cucumbers release water through their anus to reduce their size to fit into holes or under rocks. If they sense discomfort or need to move, some species will increase their buoyancy by filling up with water and floating to a better location. Deepwater species, such as the 'headless chicken monster,' Enypniastes eximia, have fins that enable them to swim in the water column.

Some sea cucumbers are a home for other organisms. A slender pearl fish enters the anus to reside in the body cavity of a balåti. The fish leaves to forage outside and then returns to its hiding place. In this commensal relationship, the pearl fish benefits, yet the sea cucumber does not appear to be harmed. The word is out about this safe haven as tiny crabs and shrimp also seek refuge inside balåti. However, it appears that some sea cucumbers in the genus Actinopyga prevent occupants by arming their anus with five teeth that block entry

Balåti appear sluggish, but don't let them fool you. They are doing one of the most important jobs on the reef, consuming and recycling nutrients. Tentacles sweep sand into the mouth. Sand contains detritus, a mixture of decomposed animals, algae, and feces. Sea cucumbers digest this nutrient-rich mix and release 'cleaner' filtered sand through the anus, like a necklace of sandy pearls. Without these important animals, the health of the marine environment would be compromised. It is normal to see hundreds of them scattered on the sea floor like so much sea cucumber confetti. Unfortunately, due to demand in Asian markets, areas such as the Galapagos Islands, the Marshall Islands, Pohnpei, and Puget Sound in Washington State, have lost tons of sea cucumbers to overharvesting.

On Guam, harvesting balåti for sale, trade or barter is illegal. However, the current catch limit of 100 per person per day creates the potential for a small number of people to decimate entire populations in a matter of days. The ecological damage includes seaweed-dominated reefs and loss of biodiversity. Legislation is needed to decrease the catch limit to a much smaller number. Five per person per day has been proposed, or even placing a ban on harvesting altogether.

These placid, charismatically-challenged creatures deserve much appreciation and protection because of their importance in protecting the health of our reefs. How can you help? Learn more about sea cucumbers, contact lawmakers to change the law to lower the catch limit, or even better, place a moratorium on harvesting, and report overharvesting.

Acknowledgements for photos, collections, and reviews: David Burdick, Laura Caser, Alexandra Kerr, Alex Kerr, and Paige Mendiola.

Sources:

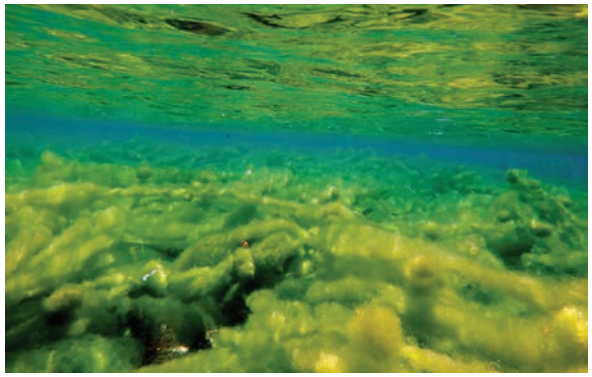
https://francoismichonneau.net/2013/11/the-sea-cucumbers-from-guam/
https://www.nytimes.com/2018/10/22/world/australia/headless-chicken-monster.html
https://asia.nikkei.com/Economy/Asia-s-taste-for-sea-cucumbers-roils-South-Pacific
https://www.nationalgeographic.com/animals/2019/01/sea-cucumber-bloat-zoom-fast-animals-news/
https://commons.wikimedia.org/wiki/File:Enypniastes_eximia_Puerto_Rico.jpg
https://www.apnews.com/9d8d08535e1d4706bea0b5a0b02272a6

INVASIVE ALGAE

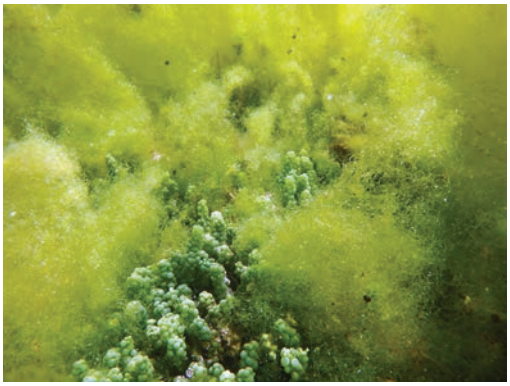
Author: Brent Tibbatts, Guam Department of Agriculture, Division of Aquatic and Wildlife Resources (DAWR)
January 29, 2019

Guam is surrounded by coral reefs, providing habitat to a large variety of organisms. Among these are around 250 species of macroalgae. Normally these algae are kept in check by various predators, and form a component of a balanced ecosystem. In early 2014, an unfamiliar green algae was noticed in Pago Bay, near the University of Guam marine lab. Within a few months, it was found along the southeast coast of Guam from Pago Bay to Cocos Island. In the years following 2014, the algae has continued to spread. The algae is now found along the west coast of Guam as well, as far north as Tumon Bay.

The algae was identified as a species of Chaetomorpha, possibly Chaetomorpha vieillardii. This algae is notable for a couple reasons. It does not grow attached to the substrate, but floats freely. This allows Chaetomorpha to be spread easily by waves and currents. Chaetomorpha grows very quickly, and can form thick mats which can crowd out native algae, block sunlight for corals and other photosynthetic organisms, and restrict access to habitat by fish and invertebrates. Chaetomorpha became a problem behind Cocos Island by August, 2014. Thick mats of the algae block the sunlight needed for corals and native algae. The algae grows thick enough to block fish and other organisms from reaching habitat. Additionally, the algae grew thickly enough to interfere with hook and line and talaya fishing. The thick mats of algae make reef walking more hazardous. A person cannot see where holes and rocks are, and risks injury by walking across the reef.



Left: Chaetomorpha overgrowing corals on the reef flat behind Cocos Island.



Chaetomorpha overgrowing native Caulerpa algae on the reef flat behind Cocos Island

Chaetomorpha covering a reef flat behind Cocos Island

Control of an invasive algae is difficult. A biological control is preferred, where the algae is controlled by other organisms. Several species of reef fish have been shown to feed on Chaetomorpha, including manahak, adult rabbitfish, and surgeonfish. Unfortunately, these species do not seem to be able to keep pace with Chaetomorpha's rapid growth rate. Physical removal of invasive algae, either mechanically or by hand, is another option. Hawaii uses an aquatic vacuum called the "Super Sucker" to remove invasive Caulerpa from reefs. The other, more labor intensive method, is removing the algae by hand. In July, 2018, DAWR along with GVB coordinated an algae cleanup for Tumon Bay. More than 400 volunteers responded and helped remove algae from Tumon. Future plans include arranging a similar effort for Cocos Island, where Chaetomorpha continues to be a problem.

Please report sightings of Chaetomorpha, or any unusual marine life, to the Department of Agriculture's Division of Aquatic and Wildlife Resources (DAWR). Telephone numbers are- 735-0281/0289/0294. Sightings can also be submitted via email to- guamfishinfo@gmail.com

Some of the hundreds of volunteers who showed up to remove invasive algae from Tumon Bay in July, 2018.

January 26, 2019 CLEANUP Tanguisson Beach

BY: JENELYN, GUMAMON
the Guamster

We had a small turn out but the amount of trash was less than how I usually remember from Guam Coastal Cleanup, which is GREAT!! We had pick up a decent amount of trash; about 7 bags of recyclables and well as a few miscellaneous items like wooden door, rusted barbeque drums, broken fishing poles, other assorted metal bars, blue water drum, and a plastic chair.

Upcoming events

Book Buddies

Come Read at the Park!
Saturday, March 23, 2019
8:30 am – 12:30 pm

Youth in 2nd and 3rd Grades are invited to register.
Registration forms accepted until March 18, 2019

To register or for more information visit the T. Stell Newman Visitor Center located outside Naval Base Guam main gate, email aobrien@pacifichistoricparks.org, or call 671-477-7278 ext. 1018

PACIFIC HISTORIC PARKS
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What in the world is this?

Photo Provided By Dave Burdick.

ALILENG TULOMPO (Trochus)

Trochus niloticus

Introduced Species

Regulated Species

Trochus or top shell, is one of the larger shellfish that can be found on Guam's fringing reefs and reef flats. This popular delicacy can be found along reef flats at low tide.

Its Chamoru name, "alileng", has misled many residents into believing that the trochus is native to Guam. On the contrary, this rugged, spiralled, red and white shell is native to southwest Micronesia including Yap and Palau.

In the early 1950s a shipment of live alileng was brought to Guam from Saipan (where it was also introduced), in hopes of establishing the alileng as an important food source. It has now become widespread on our island and is common in most reef areas. Another kind of alileng, the "alileng pulan" or turban shell is native to Guam, but is not as common.

Typically, alileng live in areas where the water is clean and well circulated, often where there are big waves. They are found in overhangs, pits, or crevices which they often leave at night to feed. Alileng feed on filamentous algae which is the fuzzy growth on rocks and dead coral. Alileng are preyed upon by large crabs, octopuses, and certain large fishes including the tangison and rays. The large, white muscular foot of the alileng is a popular food for humans. The shell, when sanded down, makes a beautiful decorative piece or a mother of pearl button or jewelry.

Regulations allow year-round harvesting for home consumption provided the daily take is not over 50 pounds (22.7 kg) of shells (including the animal inside) per person per day. Of the 50 pounds, forty pounds (18.1 kg) must be three inches (7.6 cm) or larger at the base; the remaining ten pounds must measure two inches (5.1 cm) or greater. Under no circumstances may a harvester take alileng which measure below two inches.

The Division of Aquatic and Wildlife Resources urges everyone to exercise good judgment by taking only those alileng whose shells are three inches or larger. Commercial harvests have different and even stricter regulations and require a license from the Department of Agriculture. Commercial and non-commercial violators will be prosecuted to the fullest extent of the law.